

Amendments to the Claims:

This listing of claims replaces all prior versions and listings of claims in the application:

Listing of Claims:

1. (Currently amended) A method of controlling a chemical mechanical polishing system, comprising:

receiving a plurality of tolerance limits;

polishing a first substrate with the chemical mechanical polishing system;

measuring a thickness of at least one layer in the first substrate at an in-line metrology station;

determining which, if any, of the tolerance limits are exceeded by the thickness measured; and

if it is determined that any of the tolerance limits are ~~exceed~~ exceeded, selecting one of a plurality of procedures of the chemical mechanical polishing system, the selection being based on a result of the determining step.

2. (Previously presented) The method of claim 1, wherein the plurality of procedures includes adjusting a polishing time of a second substrate from the same cassette as the first substrate.

3. (Previously presented) The method of claim 1, wherein the plurality of procedures includes adjusting a polishing time of a second substrate from a different cassette from the first substrate.

4. (Previously presented) The method of claim 1, wherein the plurality of procedures includes displaying a warning message.

5. (Previously presented) The method of claim 1, wherein the plurality of procedures includes designating a gating substrate in the next cassette.
6. (Original) A method of chemical mechanical polishing, comprising:
polishing a first substrate in a lot at a polishing station of a chemical mechanical polishing apparatus that includes an in-line metrology station;
measuring a thickness of at least one layer in the first substrate at the in-line metrology station; and
adjusting a polishing parameter based on the measurement of the first substrate;
and
polishing a second substrate at the polishing station with the adjusted polishing parameter.
7. (Original) The method of claim 6, wherein the thickness of the at least one layer is measured while a third substrate is being polished, and the second substrate is polished after the third substrate.
8. (Original) The method of claim 6, wherein the polishing parameter is adjusted if the measured thickness exceeds a tolerance limit.
9. (Original) The method of claim 8, wherein the tolerance limit is entered by a user.
10. (Original) The method of claim 6, wherein the polishing parameter is a polishing time.
11. – 16. (Cancelled)

17. (Previously presented) The method of claim 1, wherein the selection is based on which of the plurality of tolerance limits are exceeded.

18. (Currently amended) The method of claim 1, wherein the plurality of tolerance limits includes an inner tolerance limit, ~~[[and]]~~ an outer tolerance limit, and a specification tolerance limit.

19. (Currently amended) ~~The method of claim 1,~~ A method of controlling a chemical mechanical polishing system, comprising:

receiving a plurality of tolerance limits;

polishing a first substrate with the chemical mechanical polishing system, wherein the first substrate is one of a plurality of wafer types;~~the method further comprising:~~

measuring a thickness of at least one layer in the first substrate at an in-line metrology station;

determining which, if any, of the tolerance limits are exceeded by the thickness measured;

if it is determined that any of the tolerance limits are exceed, selecting one of a plurality of procedures of the chemical mechanical polishing system; and

receiving information identifying the wafer type of the first substrate, wherein the selection of one of the plurality of procedures is based on a result of the determining step and the wafer type of the first substrate.

20. (Previously presented) The method of claim 1, wherein the plurality of wafer types includes a gating wafer type, a monitor wafer type, a regular wafer type, and a user defined wafer type.

21. (Previously presented) The method of claim 1, wherein the plurality of procedures include predefined procedures.

22. (Currently amended) ~~The method of claim 1,~~ A method of controlling a chemical mechanical polishing system, comprising:

receiving a plurality of tolerance limits;

polishing a first substrate with the chemical mechanical polishing system;

measuring a thickness of at least one layer in the first substrate at an in-line metrology station;

determining which, if any, of the tolerance limits are exceeded by the thickness measured; and

if it is determined that any of the tolerance limits are exceeded, selecting one of a plurality of procedures of the chemical mechanical polishing system, the selection being based on a result of the determining step, wherein the selected one of the plurality of procedures is ~~include one of~~ immediately stopping polishing and idling, completing polishing of substrates currently loaded in the chemical mechanical polishing system and then idling, completing polishing of substrates in a cassette currently loaded in the chemical mechanical polishing system and then idling, adjusting a polishing time for other substrates in the cassette, adjusting the polishing time of substrates in other cassettes, requesting operator approval prior to adjusting the polishing time, requesting operator approval prior to adjusting a polishing procedure, returning the first substrate to the polishing apparatus, designating a gating group, generating a warning message, [[and]] or generating a status message.

23. – 30. (Cancelled)